

PIEZOELECTRIC IDENTIFICATION DEVICE
AND APPLICATIONS THEREOF

ABSTRACT OF THE DISCLOSURE

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An identification device having a piezoelectric sensor array is used to obtain biometric data. In one embodiment, a piezo ceramic sensory array is used to obtain biometric data. In another embodiment, a multi-layer sensor array structure having a PVDF layer in between two conductor grids orthogonal to one another is used to obtain biometric data. Urethane can be added to one side of the sensor array where a finger is placed. A foam substrate can be used as a support. Multiplexers are switched to control the sensor. The device has several operating modes for obtaining a variety of biometric data, including an impedance detection mode, a voltage detection mode, an imaging mode, and a Doppler-shift detection mode. The presence of a fingerprint on the sensor can be used to turn-on the device. The device is capable of capturing a fingerprint, forming a three-dimensional map of a finger bone, and/or determining the direction and speed of arteriole and/or capillary blood flow in a finger. A single pixel or a group of pixels can be detected and readout to a memory. The device can be used as an electronic signature device. The device can operate as part of a personal area network, using a public service layer according to the invention.

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